

# FISH AND FISHERPEOPLE OF THE KANDEP LAKES

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## INTRODUCTION

As part of a land use study by the Provincial Government, the Department of Primary Industry's Fisheries Research Division conducted a survey of the fish in the lakes and rivers of the Lai Valley, Enga Province, and of the role fish play in the diets of the people living there. The results of the survey are described here.

## THE LAI VALLEY

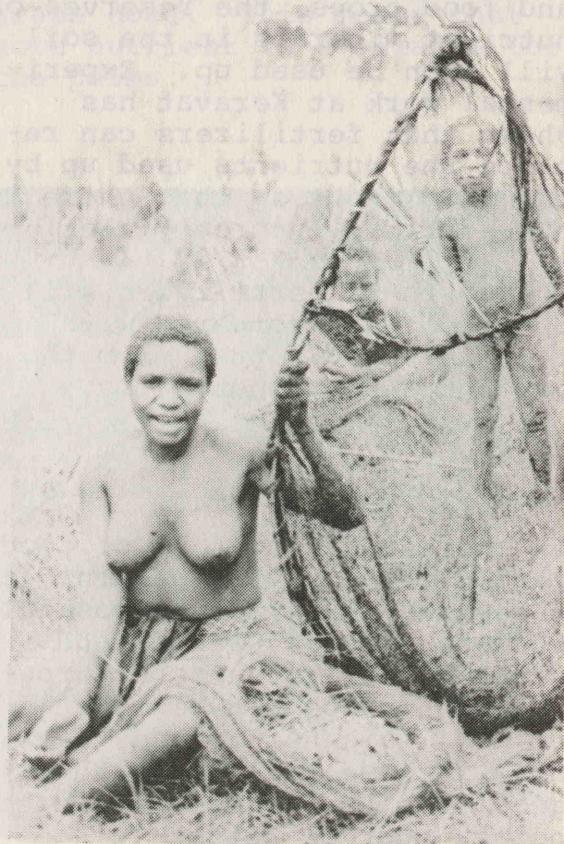
The swamp and lake system of the Lai Valley is made up of four large lakes (Papili, Paraga, Kwiakali and Kwiakia) which are drained by the Lai and Mariant rivers. The floor of the valley is 2 300 metres above sea level and the lakes cover about 300 hectares of it during the dry season. About 26 500 people live in the district (Kandep). This gives a gross density of 74 persons per square kilometre.

Nearly all the people are subsistence dwellers, gardening on the fringe of the main swamps and up the sloping hillsides. Sweet potato is the staple food of the valley. Money is rarely used by these people but sweet potato, sugar cane, cabbages or firewood may occasionally be sold and the resulting cash be spent in trade stores on rice and tinned fish. A 1976 survey reported

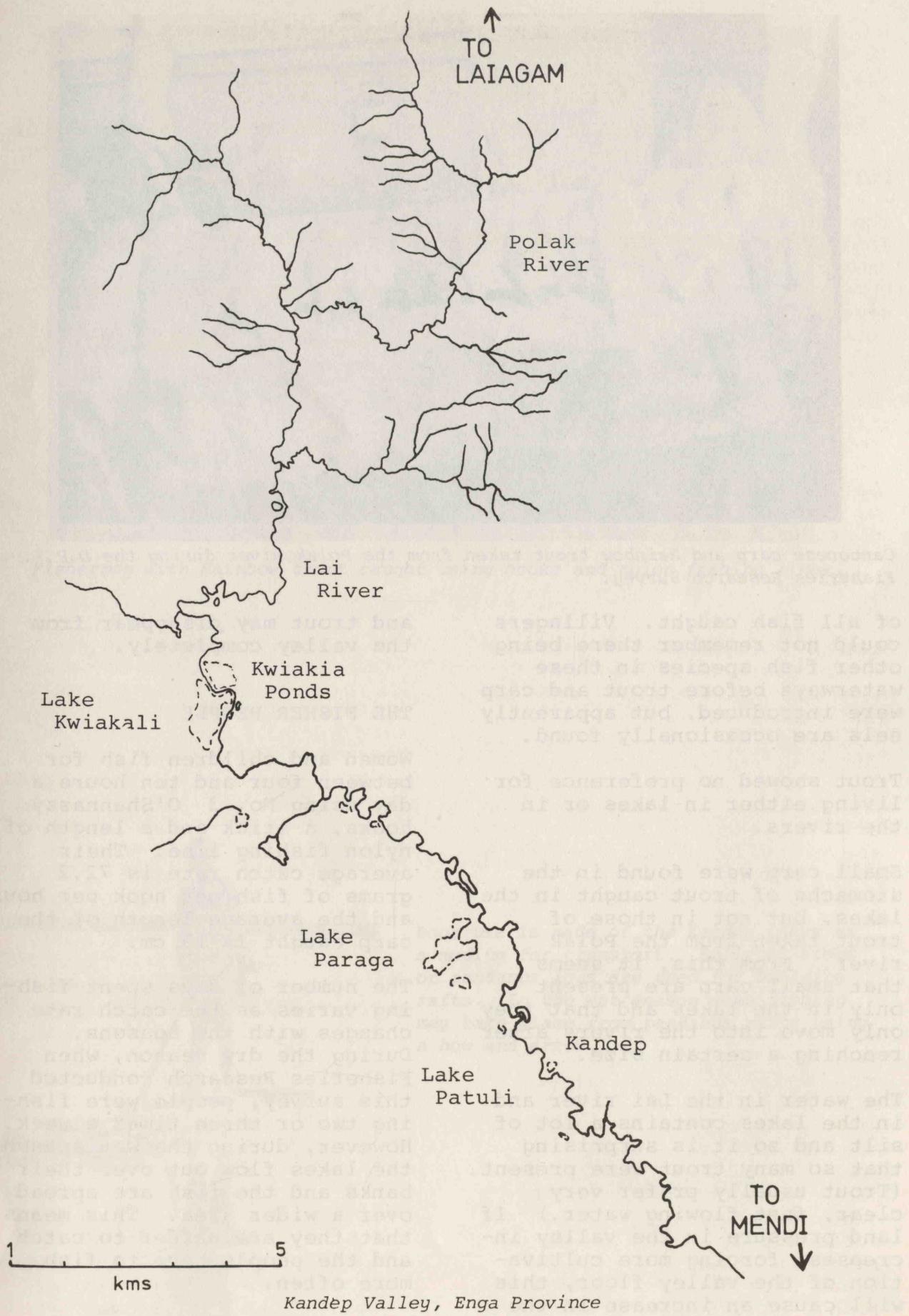
that 20% of the children in this valley were undernourished.

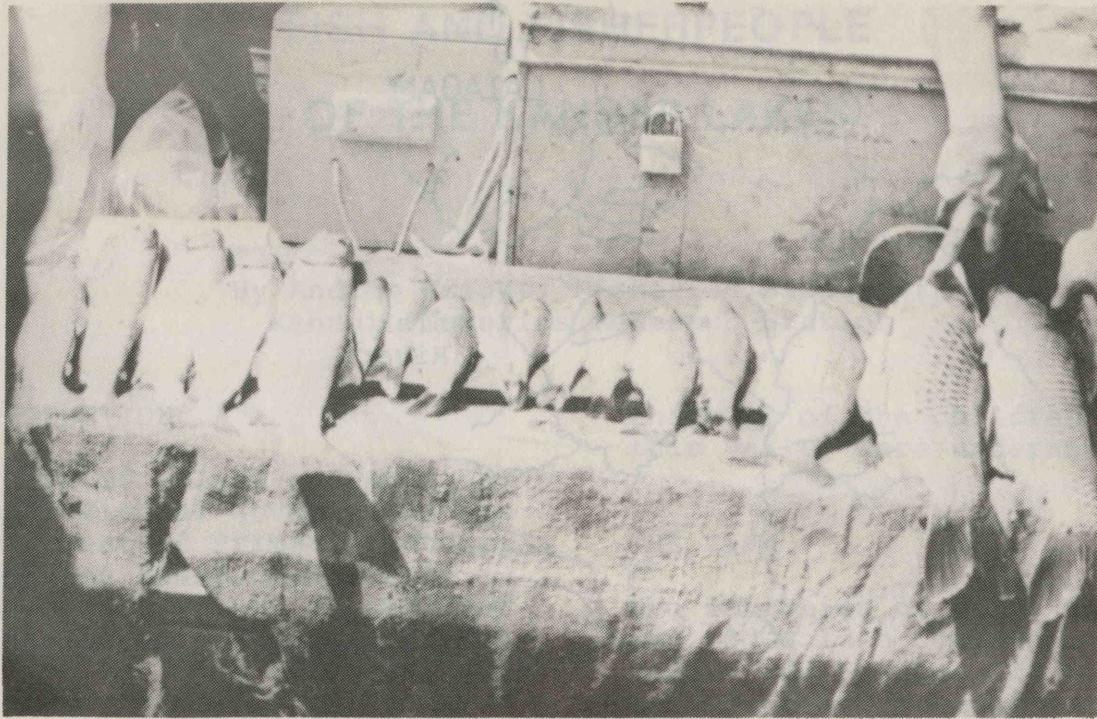
## THE FISH

Two varieties of carp, Cantonese and Golden carp (*Cyprinus carpio*) and Rainbow trout (*Salmo gairdneri*) are present throughout the Lai valley waterways. Of these, Cantonese carp form by far the largest proportion



Fisherwoman with bilum scoop net and catch of juvenile Cantonese carp.





Cantonese carp and Rainbow trout taken from the Polak River during the D.P.I. Fisheries Research Survey.

of all fish caught. Villagers could not remember there being other fish species in these waterways before trout and carp were introduced, but apparently eels are occasionally found.

Trout showed no preference for living either in lakes or in the rivers.

Small carp were found in the stomachs of trout caught in the lakes, but not in those of trout taken from the Polak river. From this, it seems that small carp are present only in the lakes and that they only move into the rivers after reaching a certain size.

The water in the Lai river and in the lakes contains a lot of silt and so it is surprising that so many trout were present. (Trout usually prefer very clear, fast flowing water.) If land pressure in the valley increases, forcing more cultivation of the valley floor, this will cause an increase in the amount of silt in the waterways

and trout may disappear from the valley completely.

#### THE FISHER PEOPLE

Women and children fish for between four and ten hours a day using No. 3 O'Shannassy hooks, a stick and a length of nylon fishing line. Their average catch rate is 72.2 grams of fish per hook per hour and the average length of the carp caught is 10 cm.

The number of days spent fishing varies as the catch rate changes with the seasons. During the dry season, when Fisheries Research conducted this survey, people were fishing two or three times a week. However, during the wet season the lakes flow out over their banks and the fish are spread over a wider area. This means that they are harder to catch and the people have to fish more often.

The most successful fishing,



*Fishermen with Rainbow trout caught using hooks and nylon fishing lines.*

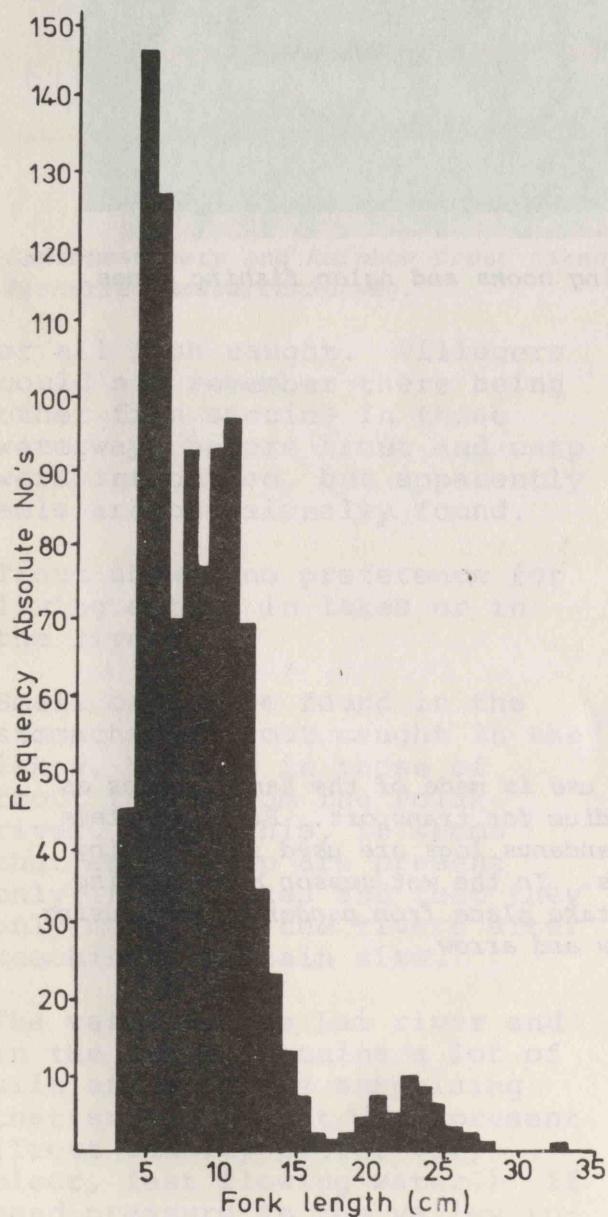


*Poor use is made of the Kandep Lakes as a medium for transport. Bullrush stems or pandanus logs are used for building rafts. In the wet season some fishing may take place from pandanus rafts using a bow and arrow.*

when the fish are 'on the bite', is when the water level is rising or falling steadily. Men will also fish during these times.

#### FUTURE DEVELOPMENTS

The histogram below shows that most of the carp caught in the Kandep waterways during the survey were very small. They were also found to be reaching maturity at a smaller size than



Length-frequency distribution for all Cantonese carp caught during the survey.

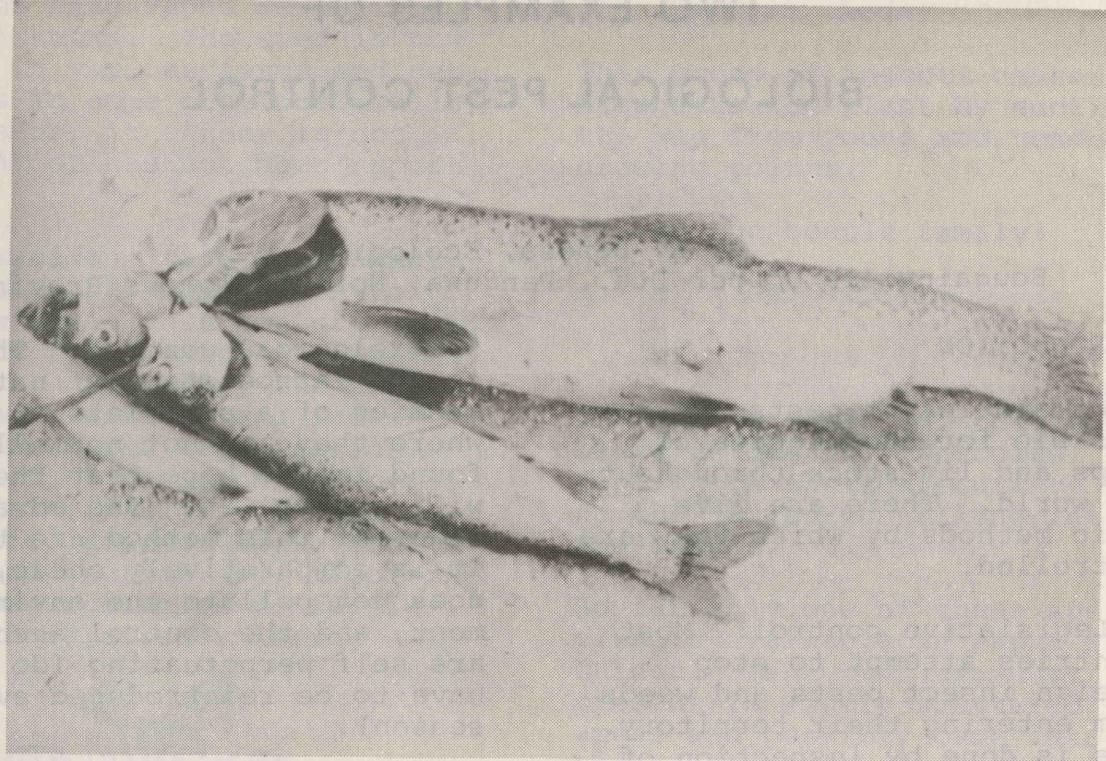
usual. This indicates that the carp population in the Lai valley is underfished. This means that if more fish are caught, there will be more food for those which are left and the average size of the fish in the waterways will increase. Provided overfishing does not occur, increased production from the lakes can then be expected.

D.P.I. Fisheries Research has therefore suggested some methods of increasing the catch. One suggestion is that 1-1½ inch mesh (2.5-3 cm) gill nets, 50 meshes deep should be introduced for use in this area. The recommended size of the mesh should be reviewed every year or two as increases in average fish size become noticeable and the mesh size needs increasing to let smaller fish escape to continue growing.

Nets will be difficult to use in the rivers because leaves, sticks and other debris will keep getting caught in them. However, they should prove quite useful in the lakes and swamps. Artificial lures, used from river banks and funnel-mouthed fish traps may also be introduced.

Another suggestion is that fisheries classes should be held in the local schools, with emphasis on efficient fishing methods suitable for village use.

Children could also be given swimming lessons at school. The water in the lakes is warm enough for this at least during part of the year, and the lessons would help the children to get used to the water. This would be very helpful because the more familiar people become with the water, the more likely they are to make full use of it.



## A catch of Rainbow trout

Courses in building plywood dinghies and canoes, started by the Provincial Fisheries Office, could lead to increased use of

the lakes for transportation and could help to distribute the fishing pressure over a wider area.